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7 / THIS PROGRAM SOURCE FILE IS SUPPLIED IN CONFIDENCE TO THE
8 / CUSTOMER; THE CONTENTS OR DETAILS OF ITS OPERATION MAY ONLY
9 / BE DISCLOSED TO PERSONS EMPLOYED BY THE CUSTOMER WHO
10 / REQUIRE A KNOWLEDGE OF THE SOFTWARE CODING TO CARRY OUT
11 / THEIR JOB. DISCLOSURE TO ANY OTHER PERSON MUST HAVE PRIOR
12 / AUTHORIZATION FROM THE DIRECTORS OF REDAC SOFTWARE LIMITED
13 /
14 /1 SUITE : P.C.B. LAYOUT
15 /2 PROGRAM TITLE : REDAL23 MARK2
16 /3 ROUTINE TITLE :
17 /
18 /4 AUTHOR :
19 /5 DATE :
20 /
21 /6 PURPOSE :
22 /
23 /
24 /7 CALLING SEQUENCE AND DESCRIPTION OF ARGUMENTS :
25 /
26 /8 I/O DEVICES AND FUNCTIONS :
27 /
28 /9 REGISTERS USED :
29 /
30 /10 EXTERNAL COMMON AREAS :
31 /
32 /11 INTERNAL COMMON AREAS :
33 /
34 /12 EXTERNAL GLOBALS :
35 /
36 /13 INTERNAL GLOBALS :
37 /
38 /14 CONDITIONAL ASSEMBLY PARAMETERS :
39 /
40 /15 METHOD :
41 /
42 /16 AMENDMENTS :
43 /
44 / SUBROUTINE PTCOMP CHECKS IF ANY P.T. HOLES UNDER
45 / COMPONENTS. O/PS COORDS OF ANY SUCH HOLES.
46 / CONDITIONAL ASSEMBLY SLOT=4 FOR LP
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47      .TITLE PTCOMP
48      .GLOBL PTCOMP, READRT, .DA, INTOP
49      00000 R 000000 A LIBRY CBD LIBRY 1
50      00001 R 000000 A COMPS CBD COMPS 1
51      00002 R 000000 A ROUTAD CBD ROUTE 1
52      00003 R 000000 A EOLIB CBD EOLIB 1
53      00004 R 000000 A EOCOMP CBD EOCOMP 1
54      00005 R 000000 A EOROUT CBD EOROUT 1
55      00006 R 740040 A PTCOMP XX
56      00007 R 220000 R LAC* LIBRY
57      00010 R 040517 R DAC LIBAD
58      00011 R 220001 R LAC* COMPS
59      00012 R 040516 R DAC COMPAD#
60      00013 R 120520 E JMS* INTOP /INITIALISE O/P DEVICE
61      00014 R 600020 R JMP .+1+3
62      00015 R 000523 R .DSA (0
63      00016 R 000523 R .DSA (0
64      00017 R 000524 R .DSA (-1
65      / PRINT PAGE TITLES
66      .WRITE 4,2,MESSA,34
        CAL+2*1000 4&777
        11
        MESSA
        .DEC
        -34
67      .WAIT 4
        CAL 4&777
        12
68      .WRITE 4,2,MESSB,34
        CAL+2*1000 4&777
        11
        MESSB
        .DEC
        -34
69      .WAIT 4
        CAL 4&777
        12
70      00034 R 220002 R LAC* ROUTAD
71      00035 R 040441 R DAC ADRT
72      00036 R 360005 R TAD* EOROUT
73      00037 R 723777 A AAC -1
74      00040 R 040442 R DAC ENDRT / ABS PTR TO END OF ROUTES
75      00041 R 200441 R RUTSCH LAC ADRT
76      00042 R 540442 R SAD ENDRT
77      00043 R 620006 R JMP* PTCOMP /FINISHED ALL ROUTES
78      00044 R 060525 R DAC* (10
79      00045 R 220010 A LAC* 10
80      00046 R 744000 A CLL
81      00047 R 640512 A LRS 12
82      00050 R 040443 R DAC NWDS / NO OF WORDS IN ROUTE IN ROUTES ARRAY
83      00051 R 220002 R LAC* ROUTAD
84      00052 R 740031 A TCA

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Handwritten notes:

- .xxnon .cbd .xx 7* (near line 51)
- CLX* (near line 55)
- LAC (6* (near line 56)
- PAL* (near line 57)
- LUP LAC* .xxnon, x* (near line 58)
- DAC COPPER, x* (near line 59)
- AXS 7* (near line 60)
- JNP LUP* (near line 61)

| PAGE | 3 | PTCOMP SRC | PTCOME |
|------|---|------------------|---|
| 85 | | 00053 R 340441 R | TAD ADRT |
| 86 | | 00054 R 740030 A | IAC |
| 87 | | 00055 R 040444 R | DAC RTPT |
| 88 | | 00056 R 120521 E | JMS* READRT / READ NEXT ROUTE INTO BUFF |
| 89 | | 00057 R 600063 R | JMP .+1+3 |
| 90 | | 00060 R 000274 R | .DSA BUFF |
| 91 | | 00061 R 000526 R | .DSA (1 / NON DESTRUCTIVE READ |
| 92 | | 00062 R 000444 R | .DSA RTPT |
| 93 | | | / NOW SCAN ROUTE IN BUFF |
| 94 | | | / |
| 95 | | | / |
| 96 | | 00063 R 140445 R | DZM NPT / NO OF PTS SCANNED |
| 97 | | 00064 R 200527 R | LAC (BUFF |
| 98 | | 00065 R 040463 R | DAC BFAD / PTR TO POINT IN BUFF |
| 99 | | 00066 R 200445 R | BUFSCN LAC NPT |
| 100 | | 00067 R 540274 R | SAD BUFF |
| 101 | | 00070 R 600120 R | JMP ENBUF / FINISHED THIS ROUTE IN BUFF |
| 102 | | 00071 R 723776 A | AAC -2 |
| 103 | | 00072 R 741100 A | SPA |
| 104 | | 00073 R 600111 R | JMP NEXPT |
| 105 | | 00074 R 220463 R | LAC* BFAD / SIDE OF THIS SEG |
| 106 | | 00075 R 540446 R | SAD SIDE / LAST SEG |
| 107 | | 00076 R 600112 R | JMP NEXPT+1 / SAME SIDE,NO P.T. HOLE |
| 108 | | 00077 R 200463 R | LAC BFAD |
| 109 | | 00100 R 723776 A | AAC -2 |
| 110 | | 00101 R 040463 R | DAC BFAD |
| 111 | | 00102 R 220463 R | LAC* BFAD |
| 112 | | 00103 R 040447 R | DAC XP |
| 113 | | 00104 R 440463 R | ISZ BFAD |
| 114 | | 00105 R 220463 R | LAC* BFAD |
| 115 | | 00106 R 040450 R | DAC YP |
| 116 | | 00107 R 100124 R | JMS COMPAR |
| 117 | | 00110 R 440463 R | ISZ BFAD |
| 118 | | 00111 R 220463 R | NEXPT LAC* BFAD |
| 119 | | 00112 R 040446 R | DAC SIDE / STORE SEG SIDE |
| 120 | | 00113 R 200463 R | LAC BFAD |
| 121 | | 00114 R 723003 A | AAC 3 |
| 122 | | 00115 R 040463 R | DAC BFAD / UPDATE TO NEXT PT |
| 123 | | 00116 R 440445 R | ISZ NPT |
| 124 | | 00117 R 600066 R | JMP BUFSCN |
| 125 | | 00120 R 200441 R | ENBUF LAC ADRT |
| 126 | | 00121 R 340443 R | TAD NWDS |
| 127 | | 00122 R 040441 R | DAC ADRT / UPDATE PTR TO NXT ROUTE |
| 128 | | 00123 R 600041 R | JMP RUTSCN |
| 129 | | | / |
| 130 | | | / NOW SEE IF PT HOLE IS UNDER ANY COMP |
| 131 | | | / |
| 132 | | | / |
| 133 | | 00124 R 740040 A | COMPAT XX |
| 134 | | 00125 R 200516 R | LAC COMPAD |
| 135 | | 00126 R 040451 R | DAC ADCMP |
| 136 | | 00127 R 360004 R | TAD* EOCOMP |

| PAGE | 4 | PTCOMP | SRC | PTCOMP |
|------|---|--------|------------|-------------------------------------|
| 137 | | 00130 | R 723777 A | AAC -1 |
| 138 | | 00131 | R 040452 R | DAC ENCMP / ABS PTR TO END OF COMPS |
| 139 | | 00132 | R 200451 R | CMPSCN LAC ADCMP |
| 140 | | 00133 | R 540452 R | SAD ENCMP |
| 141 | | 00134 | R 620124 R | JMP* COMPAR |
| 142 | | 00135 | R 723003 A | AAC 3 |
| 143 | | 00136 | R 040451 R | DAC ADCMP |
| 144 | | 00137 | R 220451 R | LAC* ADCMP |
| 145 | | 00140 | R 500530 R | AND (777 |
| 146 | | 00141 | R 040453 R | DAC LIBPTR |
| 147 | | 00142 | R 220451 R | LAC* ADCMP |
| 148 | | 00143 | R 640520 A | LRS 20 |
| 149 | | 00144 | R 500531 R | AND (3 |
| 150 | | 00145 | R 040454 R | DAC ORNT / COMPONENT ORIENTATION |
| 151 | | 00146 | R 440451 R | ISZ ADCMP |
| 152 | | 00147 | R 220451 R | LAC* ADCMP |
| 153 | | 00150 | R 500532 R | AND (1777 |
| 154 | | 00151 | R 040455 R | DAC XMIN |
| 155 | | 00152 | R 040461 R | DAC XMAX / GET COMP POSN |
| 156 | | 00153 | R 440451 R | ISZ ADCMP |
| 157 | | 00154 | R 220451 R | LAC* ADCMP |
| 158 | | 00155 | R 500532 R | AND (1777 |
| 159 | | 00156 | R 040456 R | DAC YMIN |
| 160 | | 00157 | R 040462 R | DAC YMAX |
| 161 | | 00160 | R 440451 R | ISZ ADCMP / UPDATE FOR NEXT COMP |
| 162 | | 00161 | R 200517 R | LAC LIBAD# |
| 163 | | 00162 | R 340453 R | TAD LIBPTR |
| 164 | | 00163 | R 740030 A | IAC / PTR TO 3RD WRD IN LIB ENTRY |
| 165 | | 00164 | R 040453 R | DAC LIBPTR / ABS PTR NOW |
| 166 | | 00165 | R 220453 R | LAC* LIBPTR |
| 167 | | 00166 | R 500530 R | AND (777 |
| 168 | | 00167 | R 040460 R | DAC YSIZ |
| 169 | | 00170 | R 220453 R | LAC* LIBPTR |
| 170 | | 00171 | R 744000 A | CLL |
| 171 | | 00172 | R 640511 A | LRS 11 |
| 172 | | 00173 | R 040457 R | DAC XSIZ / X,Y SIZE OF COMP |
| 173 | | 00174 | R 200454 R | LAC ORNT |
| 174 | | 00175 | R 741200 A | SNA |
| 175 | | 00176 | R 600227 R | JMP OR0 |
| 176 | | 00177 | R 540526 R | SAD (1 |
| 177 | | 00200 | R 600221 R | JMP OR1 |
| 178 | | 00201 | R 540533 R | SAD (2 |
| 179 | | 00202 | R 600210 R | JMP OR2 |
| 180 | | 00203 | R 200460 R | OR3 LAC YSIZ |
| 181 | | 00204 | R 340461 R | TAD XMAX |
| 182 | | 00205 | R 040461 R | DAC XMAX |
| 183 | | 00206 | R 200457 R | LAC XSIZ |
| 184 | | 00207 | R 600215 R | JMP NSTY |
| 185 | | 00210 | R 200457 R | OR2 LAC XSIZ |
| 186 | | 00211 | R 740031 A | TCA |
| 187 | | 00212 | R 340455 R | TAD XMIN |
| 188 | | 00213 | R 040455 R | DAC XMIN |

| PAGE | 5 | PTCOMP | SRC | PTCOMP |
|------|---|--------|------------|---------------------------------------|
| 189 | | 00214 | R 200460 R | LAC YSIZ |
| 190 | | 00215 | R 740031 A | NSTY TCA |
| 191 | | 00216 | R 340456 R | TAD YMIN |
| 192 | | 00217 | R 040456 R | DAC YMIN |
| 193 | | 00220 | R 600235 R | JMP EX |
| 194 | | 00221 | R 200460 R | OR1 LAC YSIZ |
| 195 | | 00222 | R 740031 A | TCA |
| 196 | | 00223 | R 340455 R | TAD XMIN |
| 197 | | 00224 | R 040455 R | DAC XMIN |
| 198 | | 00225 | R 200457 R | LAC XSIZ |
| 199 | | 00226 | R 600233 R | JMP STRY |
| 200 | | 00227 | R 200457 R | OR0 LAC XSIZ |
| 201 | | 00230 | R 340461 R | TAD XMAX |
| 202 | | 00231 | R 040461 R | DAC XMAX |
| 203 | | 00232 | R 200460 R | LAC YSIZ |
| 204 | | 00233 | R 340462 R | STRY TAD YMAX |
| 205 | | 00234 | R 040462 R | DAC YMAX |
| 206 | | | | / TEST HOLE POS AGAINTST COMP MAX,MIN |
| 207 | | | | / |
| 208 | | 00235 | R 200447 R | EX LAC XP |
| 209 | | 00236 | R 740031 A | TCA |
| 210 | | 00237 | R 652000 A | LMQ |
| 211 | | 00240 | R 340461 R | TAD XMAX |
| 212 | | 00241 | R 741100 A | SPA |
| 213 | | 00242 | R 600132 R | JMP CMPSCN / NOT UNDER THIS COMP |
| 214 | | 00243 | R 641002 A | LACQ |
| 215 | | 00244 | R 340455 R | TAD XMIN |
| 216 | | 00245 | R 740300 A | SMA!SZA |
| 217 | | 00246 | R 600132 R | JMP CMPSCN |
| 218 | | 00247 | R 200450 R | LAC YP |
| 219 | | 00250 | R 740031 A | TCA |
| 220 | | 00251 | R 652000 A | LMQ |
| 221 | | 00252 | R 340462 R | TAD YMAX |
| 222 | | 00253 | R 741100 A | SPA |
| 223 | | 00254 | R 600132 R | JMP CMPSCN |
| 224 | | 00255 | R 641002 A | LACQ |
| 225 | | 00256 | R 340456 R | TAD YMIN |
| 226 | | 00257 | R 740300 A | SMA!SZA |
| 227 | | 00260 | R 600132 R | JMP CMPSCN |
| 228 | | 00261 | R 120520 E | JMS* INTOP |
| 229 | | 00262 | R 600266 R | JMP .+1+3 |
| 230 | | 00263 | R 000447 R | .DSA XP |
| 231 | | 00264 | R 000534 R | .DSA (12 |
| 232 | | 00265 | R 000526 R | .DSA (1 |
| 233 | | 00266 | R 120520 E | JMS* INTOP |
| 234 | | 00267 | R 600273 R | JMP .+1+3 |
| 235 | | 00270 | R 000450 R | .DSA YP |
| 236 | | 00271 | R 000534 R | .DSA (12 |
| 237 | | 00272 | R 000523 R | .DSA (0 |
| 238 | | 00273 | R 600132 R | JMP CMPSCN |
| 239 | | | | / |
| 240 | | | | / |

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241      / SYMBOL TABLE FOLLOWS
242      /
243      00274 R      A      BUFF .BLOCK 144
244      00440 R 000000 A      MODE 0
245      00441 R 000000 A      ADRT 0
246      00442 R 000000 A      ENDRT 0
247      00443 R 000000 A      NWDS 0
248      00444 R 000000 A      RTPT 0
249      00445 R 000000 A      NPT 0
250      00446 R 000000 A      SIDE 0
251      00447 R 000000 A      XP 0
252      00450 R 000000 A      YP 0
253      00451 R 000000 A      ADCMP 0
254      00452 R 000000 A      ENCMP 0
255      00453 R 000000 A      LIBPTR 0
256      00454 R 000000 A      ORNT 0
257      00455 R 000000 A      XMIN 0
258      00456 R 000000 A      YMIN 0
259      00457 R 000000 A      XSIZ 0
260      00460 R 000000 A      YSIZ 0
261      00461 R 000000 A      XMAX 0
262      00462 R 000000 A      YMAX 0
263      00463 R 000000 A      BFAD 0
264      00464 R 002002 A      MESSB 2002: 0
265      00465 R 000000 A
266      00466 R 201004 A      .ASCII /      XCOORD      YCOORD <15>
267      00467 R 020100 A
268      00470 R 542071 A
269      00471 R 747644 A
270      00472 R 421004 A
271      00473 R 020100 A
272      00474 R 546071 A
273      00475 R 747644 A
274      00476 R 421001 A
275      00477 R 500000 A
276      00500 R 002002 A      MESSA 2002: 0
277      00501 R 000000 A
278      00502 R 501352 A      .ASCII /P.T. HOLES UNDER COMPONENTS <15>
279      00503 R 427100 A
280      00504 R 442371 A
281      00505 R 442646 A
282      00506 R 202531 A
283      00507 R 642212 A
284      00510 R 511010 A
285      00511 R 347632 A
286      00512 R 502371 A
287      00513 R 642634 A
288      00514 R 522464 A
289      00515 R 006400 A
290      00520 R 000520 E *E
291      00521 R 000521 E *E

```

.END

COPPER
 BOARD
 LIBRY
 CONVX
 CONPS
 ROUTAD

00522 R 000522 E *E
00523 R 000000 A *L
00524 R 777777 A *L
00525 R 000010 A *L
00526 R 000001 A *L
00527 R 000274 R *L
00530 R 000777 A *L
00531 R 000003 A *L
00532 R 001777 A *L
00533 R 000002 A *L
00534 R 000012 A *L

SIZE=00535

NO ERROR LINES

PAGE 8 PTCOMP CROSS REFERENCE

| | | | | | | | | | |
|--------|--------|------|------|------|------|------|------|------|-----|
| ADCMP | 00451 | 135 | 139 | 143 | 144 | 147 | 151 | 152 | 156 |
| | | 157 | 161 | 253* | | | | | |
| ADRT | 00441 | 71 | 75 | 85 | 125 | 127 | 245* | | |
| BFAD | 00463 | 98 | 105 | 108 | 110 | 111 | 113 | 114 | 117 |
| | | 118 | 120 | 122 | 263* | | | | |
| BUFF | 00274 | 90 | 97 | 100 | 243* | | | | |
| BUFSCN | 00066 | 99* | 124 | | | | | | |
| CMPSCN | 00132 | 139* | 213 | 217 | 223 | 227 | 238 | | |
| COMPAD | 00516 | 59 | 134 | | | | | | |
| COMPAR | 00124 | 116 | 133* | 141 | | | | | |
| COMPS | 00001 | 50* | 50 | 58 | | | | | |
| ENBUF | 00120 | 101 | 125* | | | | | | |
| ENCMP | 00452 | 138 | 140 | 254* | | | | | |
| ENDRT | 00442 | 74 | 76 | 246* | | | | | |
| EOCOMP | 00004 | 53* | 136 | | | | | | |
| EOLIB | 00003 | 52* | | | | | | | |
| EOROUT | 00005 | 54* | 72 | | | | | | |
| EX | 00235 | 193 | 208* | | | | | | |
| INTOP | 00520 | 48 | 60 | 228 | 233 | | | | |
| LIBAD | 00517 | 57 | 162 | | | | | | |
| LIBPTR | 00453 | 146 | 163 | 165 | 166 | 169 | 255* | | |
| LIBRY | 00000 | 49* | 49 | 56 | | | | | |
| MESSA | 00500 | 66 | 266* | | | | | | |
| MESSB | 00464 | 68 | 264* | | | | | | |
| MODE | 00440 | 244* | | | | | | | |
| NEXPT | 00111 | 104 | 107 | 118* | | | | | |
| NPT | 00445 | 96 | 99 | 123 | 249* | | | | |
| NSTY | 00215 | 184 | 190* | | | | | | |
| NWDS | 00443 | 82 | 126 | 247* | | | | | |
| ORNT | 00454 | 150 | 173 | 256* | | | | | |
| OR0 | 00227 | 175 | 200* | | | | | | |
| OR1 | 00221 | 177 | 194* | | | | | | |
| OR2 | 00210 | 179 | 185* | | | | | | |
| OR3 | 00203 | 180* | | | | | | | |
| PTCOMP | 00006 | 47 | 48 | 55* | 77 | | | | |
| READRT | 00521 | 48 | 88 | | | | | | |
| ROUTAD | 00002 | 51* | 70 | 83 | | | | | |
| RTPT | 00444 | 87 | 92 | 248* | | | | | |
| RUTSCN | 00041 | 75* | 128 | | | | | | |
| SIDE | 00446 | 106 | 119 | 250* | | | | | |
| SLOT | 777775 | | | | | | | | |
| STRY | 00233 | 199 | 204* | | | | | | |
| XMAX | 00461 | 155 | 181 | 182 | 201 | 202 | 211 | 261* | |
| XMIN | 00455 | 154 | 187 | 188 | 196 | 197 | 215 | 257* | |
| XP | 00447 | 112 | 208 | 230 | 251* | | | | |
| XSIZ | 00457 | 172 | 183 | 185 | | 200 | 259* | | |
| YMAX | 00462 | 160 | 204 | 205 | 221 | 262* | | | |
| YMIN | 00456 | 159 | 191 | 192 | 225 | 258* | | | |
| YP | 00450 | 115 | 218 | 235 | 252* | | | | |
| YSIZ | 00460 | 168 | 180 | 189 | 194 | 203 | 260* | | |
| .DA | 00522 | 48 | | | | | | | |